

-59-

What is claimed is :

1. An expression vector encoding a CD4-gamma2 chimeric heavy chain homodimer designated CD4-IgG2-pcDNA1 (ATCC No. 40952).
- 5 2. A CD4-gamma2 chimeric heavy chain homodimer encoded by the expression vector of claim 1.
3. A method of producing a CD4-gamma2 chimeric heavy chain homodimer which comprises:
 - 10 a) transfecting a mammalian cell with the expression vector of claim 1;
 - b) culturing the resulting transfected mammalian cell under conditions such that chimeric heavy chain homodimer is produced; and
 - 15 c) recovering the chimeric heavy chain homodimer so produced.
- 20 4. A method of claim 3, wherein the mammalian cell is a COS cell, CHO cell or myeloma cell.
5. A method of inhibiting HIV infection of a CD4+ cell which comprises treating the CD4+ cell with an
25 amount of the CD4-gamma2 chimeric heavy chain homodimer of claim 2 effective to inhibit infection of the cell.
6. A method of preventing a subject from being
30 infected with HIV which comprises administering to the subject an amount of the CD4-gamma2 chimeric heavy chain homodimer of claim 2 effective to prevent the subject from being infected with HIV.

35

-60-

7. A method of treating a subject infected with HIV so as to block the spread of HIV infection which comprises administering to the subject an amount of the CD4-gamma2 chimeric heavy chain homodimer of claim 2 effective to block the spread of HIV infection.
- 5
8. A pharmaceutical composition which comprises the CD4-gamma2 chimeric heavy chain homodimer of claim 2 in an amount effective to inhibit HIV infection of a CD4+ cell and a pharmaceutically acceptable carrier.
- 10
9. A composition of matter comprising a CD4-gamma2 chimeric heavy chain homodimer of claim 2 and a toxin linked thereto.
- 15
10. A composition of claim 9, wherein the toxin is the deglycosylated A chain of ricin, domains II or III of Pseudomonas exotoxin A, or Diphtheria toxin.
- 20
11. A diagnostic reagent comprising a CD4-gamma2 chimeric heavy chain homodimer of claim 2 and a detectable marker linked thereto.
- 25
12. A diagnostic reagent of claim 11 wherein the detectable marker is a radioisotope, chromophore, or fluorophore.
- 30
13. An expression vector encoding the heavy chains of a CD4-IgG2 chimeric heterotetramer designated CD4-IgG2HC-pRccMV (ATCC No. 75193).
- 35
14. An expression vector encoding the light chains of a CD4-IgG2 chimeric heterotetramer designated CD4-KLC-pRccMV (ATCC No. 75194).

-61-

15. A CD4-IgG2 chimeric heterotetramer, the heavy chains of which are encoded by the expression vector of claim 13.
- 5 16. A CD4-IgG2 chimeric heterotetramer, the light chains of which are encoded by the expression vector of claim 14.
- 10 17. A CD4-IgG2 chimeric heterotetramer the heavy and the light chains of which are encoded by the expression vectors of claims 13 and 14, respectively.
18. A method of producing a CD4-IgG2 chimeric heterotetramer which comprises:
- 15 a) cotransfecting a mammalian cell with the expression vector of claim 13 and an expression vector encoding a light chain;
- 20 b) culturing the resulting cotransfected mammalian cell under conditions such that the CD4-IgG2 chimeric heterotetramer is produced; and
- 25 c) recovering the CD4-IgG2 chimeric heterotetramer so produced.
19. A method of producing an CD4-IgG2 chimeric heterotetramer which comprises:
- 30 a) cotransfecting a mammalian cell with the expression vector of claim 14 and an expression vector encoding an IgG2 heavy chain and;
- 35

-62-

- b) culturing the resulting cotransfected mammalian cell under conditions such that the chimeric heterotetramer is produced; and
- c) recovering the chimeric heterotetramer so produced.

5

20. A method of producing a CD4-IgG2 chimeric heterotetramer which comprises:

10

- a) cotransfecting a mammalian cell with the expression vectors of claim 13 and 14;
- b) culturing the resulting cotransfected mammalian cell under conditions such that the chimeric heterotetramer is produced; and
- c) recovering the chimeric heterotetramer so produced.

15

21. A method of claim 18, 19 or 20, wherein the mammalian cell is a COS cell, CHO cell or myeloma cell.

20

22. A method of inhibiting HIV infection of a CD4+ cell which comprises treating the CD4+ cell with an amount of the CD4-IgG2 chimeric heterotetramer of claim 15, 16 or 17 effective to inhibit infection of the cell.

25

23. A method of preventing a subject from being infected with HIV which comprises administering to the subject an amount of the CD4-IgG2 chimeric heterotetramer of claim 15, 16 or 17 effective to prevent the subject from being infected with HIV.

30

35

-63-

24. A method of treating a subject infected with HIV so as to block the spread of HIV infection which comprises administering to the subject an amount of CD4-IgG2 chimeric heterotetramer of claim 15, 16 or 17 effective to block spread of HIV infection.
- 5 25. A pharmaceutical composition which comprises the CD4-IgG2 chimeric heterotetramer of claim 15, 16 or 17 in an amount effective to inhibit HIV infection of a CD4+ cell and a pharmaceutically acceptable carrier.
- 10 26. A composition of matter comprising a CD4-IgG2 chimeric heterotetramer of claim 15, 16 or 17 and a toxin linked thereto.
- 15 27. A composition of claim 26, wherein the toxin is the deglycosylated A chain of ricin, domains II or III of Pseudomonas exotoxin A, and Diphtheria toxin.
- 20 28. A diagnostic reagent comprising a CD4-IgG2 chimeric heterotetramer of claim 15, 16 or 17 and a detectable marker linked thereto.
- 25 29. A diagnostic reagent of claim 28 wherein the detectable marker is a radioisotope, chromophore or fluorophore.

30

35